geology, is worthy of special note as one of the signs of the educational times. It is significant both as an indication of a demand and as exemplifying a supply. It is a gratifying mark of progress that there should have grown to be a place for a work of this character as a supplement to the usual treatises on geography and geology. It is a not less gratifying mark of progress that such a demand should be appreciated and met by a careful and competent scientist of high position.

The work opens with a clear and brief statement of the nature of glaciers, and of their varieties and of the work done by them. Their distribution in North America is then sketched comprehensively, after which individual glaciers and glacial districts are described in detail. It is in the study of these glaciers individually, aided by the numerous photographic illustrations, that the real characters of glaciers will come to be realized by the students. The average reader will doubtless be surprised at the number, variety and instructiveness of American glaciers. They very greatly surpass those of all other accessible continents.

Following the individual descriptions are chapters on the climatic changes indicated by the glaciers of North America, upon the cause and mode of glacial motion, and upon the life history of a glacier. The discussions of theoretical questions are conservative and judicial in tone, and manifest a notable tendency to eclectic conclusions. Professor Russell's comprehensive statement of the various hypotheses of glacial motion will doubtless be found one of the most interesting sections of the volume by advanced glacial students. The work is heartily commended to teachers and general readers as well as students.

T. C. C.

Former Extension of Cornell Glacier near the Southern end of Melville Bay. By RALPH S. TARR. Bull. Geol. Soc. Amer., Vol VIII, pp. 251–268. Plates XXV to XXIX, March 1897.

An abstract of this paper was given in the January-February number of this JOURNAL, pp. 95–96. An editorial relative to it appeared in the same number, pp. 81–85. Communications in reference to it have also appeared in *Science*, Vol. V, No. 113, February 26, p. 344; No. 114, March 5, pp. 400–401, and No. 117, March 26, pp. 515–516. This further notice is introduced mainly for the purpose of presenting

THE DEVIL'S THUMB

Elevation 2,650 feet; glaciated surface in the foreground; rugged angular topography in background on left. Transported pebbles obtained on crest of the Devil's Thumb. Photograph by J. O. Martin. (Author's legend.)

to the readers of the JOURNAL the chief photograph of the paper for comparison with those previously presented in this JOURNAL in the series entitled "Glacial Studies in Greenland." It need only be added that Professor Tarr regards this photograph as presenting a "rugged, angular topography," and offers it with similar photographs in sub-

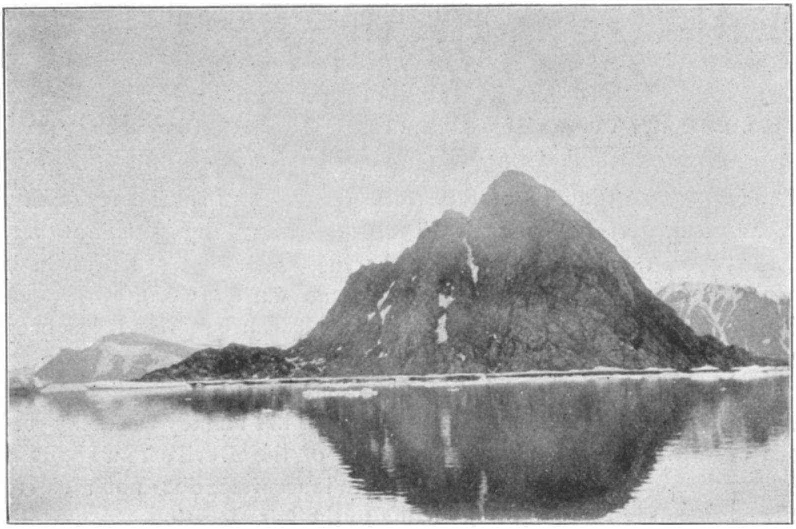

FIG. 1. Dalrymple Island, an illustration of unglaciated topography.

stantiation of his claim that topographic contours cannot be trusted as indices of glaciation. As glaciation seems to the reviewer to be expressed with much clearness and definiteness in the contours of the promontory here cited as a proof to the contrary, it seems the fairest mode of review to reproduce the photograph and permit geologists to judge for themselves. For comparison there is added a photographic illustration of Dalrymple Island, which has been previously published in this JOURNAL as an illustration of unglaciated asperities. The reviewer does not see how anyone trained in glacial topography can fail to see glacial modification in the one and the absence of it in the other. The humorous feature of the issue raised in the paper and the outgrowing discussion is that contours of the type illustrated by Professor Tarr's photographs were identified as moderately glaciated by those whose conclusions he seeks to overthrow and his observa-

tions of the drift and other positive indices confirm the correctness of their identifications.

It is infelicitous to call the promontory in the photograph the Devil's Thumb. The author remarks in a footnote: "This is the Devil's Thumb as given on the Danish and British Admiralty charts.

FIG. 2. Devil's Thumb, S.E.^{b}E. (True) S.S.W.½W. (Mag^c.) (Legend on British Admiralty Chart.)

The real Devil's Thumb of the Arctic explorers is some forty or fifty miles north of this" (p. 254). The true Devil's Thumb is, however, sketched on the British Admiralty chart and the sketch there given is herewith reproduced. It is topographically an object of a very different order from the promontory of the photograph. As it has been cited in the articles in this JOURNAL in its bearings upon the limitations of glaciation, it seems unfortunate to introduce another Devil's Thumb of so different a nature. Confusion has already arisen by reason of this. An error in the location of the Devil's Thumb, in a region where the charts are confessedly inaccurate, does not seem to us to justify the transfer of the name to the false location.

The author makes passing mention of the driftless area in the Inglefield Gulf region, and although he declines to discuss it, as it was not seen by him, he remarks in a footnote that "he cannot let this opportunity pass without raising the query whether the topography in the neighborhood of the Greenland driftless area is not such that an area of this sort would naturally be expected. Was not the movement of the ice outward and the main stream down the Inglefield Gulf? And is not the driftless area located in the place where the high Red Cliff peninsula would naturally have clogged the ice and hence prevented its action of erosion and notable transportation?" The driftless area is part of the same ancient peneplain as the summit of the Red Cliff peninsula (JOUR. GEOL., pp. 205–206, Vol. III, 1895). It lies on the *east side of Red Cliff peninsula* (see map on p. 668, Vol. II, JOUR. GEOL.). It lies *between it and the great ice-cap.* It is separated from the peninsula by the valley of Bowdoin Bay about two miles wide and 2000 feet deep. How an isolated part of a peneplain can protect from glaciation another part of the same plain lying between

it and the source of the glacial motion, and several miles distant, is not easily understood. The suggestion does not seem to have sprung from a serious consideration of the conditions of the problem.

T. C. C.

Report on the Valley Regions of Alabama (Palæozoic Strata). Part I. On the Tennessee Valley Regions. By HENRY MCCALLEY.

The palæozoic area in northern Alabama may be divided into two regions. That to the northwest, drained chiefly by the Tennessee River and its tributaries, is characterized by the nearly horizontal and undisturbed condition of the strata. The region to the southeast, drained by the Coosa River, is a region of greater disturbance with the geologic features much complicated by the folding and faulting of the strata. The first of these regions is described in the present report; part two of the report, not yet published, will treat of the second or Coosa valley region.

The report is divided into two sections, the first of which is a general treatment of the physical features, geology, natural resources, soils, agricultural features, timber, waterpower, climate, rainfall, drainage, and health. Much the larger part of the report is devoted to the second section which treats of county details.

Chapter two of the first section entitled Geology describes the stratigraphy of the region and is the only portion of the report of general interest. The following table of formations is given :

(8) Tertiary	(k) Lafayette	
(7) Cretaceous	(j) Tuscaloosa	
(6) Carboniferous	(i) Coal Measures	200–500 feet
(5) Upper Sub-Carboniferous	(h) Bangor limestones,	200–450 feet
	(g) Hartselle sandstones	150–400 feet
(4) Lower Sub-Carboniferous	(f) Tuscumbia or St. Louis limestones	75–200 feet
	(e) Lauderdale or Keokuk chert	100–250 feet
(3) Devonian	(d) Black shale	0–45 feet
(2) Upper Silurian	(c) Red Mountain or Clinton (Niagara)	3–350 feet
(1) Lower Silurian	(b) Pelham or Trenton (Nashville,	700–1000 feet
	(a) Siliceous (Knox) dolomite and chert	2000 feet